



# *Ebb & Flow*





# Clean Boating in the Commonwealth

By Robin Lacey, CZM

## What could be better than boating on a hot summer day?

Whether you're sailing a catboat across Pleasant Bay, casting for blues from a Whaler off Race Point, or exploring the Great Marsh on a small skiff, boating not only frees you from the traffic and crowded beaches, it connects you with our natural environment. Clean water—free of debris, pathogens, and pollutants—and healthy coastal habitats are important to the best possible boating in the Bay State.

## It All Adds Up

So many routine activities—like driving the car, fertilizing the lawn, even walking the family dog—can leave behind contaminants that are washed into rivers, streams, and oceans when it rains. “Nonpoint source pollution” is the technical term for this runoff contamination. The combined impacts of these countless small sources add up to significant pollution problems. In fact, with the tremendous advances in reducing industrial discharges, improving sewage treatment, and reducing other “point” sources of pollution, nonpoint source pollution is now the number one pollution problem affecting U.S. coastal waters.

While most of this pollution comes from the land, boating and boat maintenance can also introduce a number of harmful pollutants to coastal waters. For example, paints, solvents, oil and gasoline, and other hazardous materials generated through boat operation and maintenance can be toxic to humans and marine life. In addition, sewage released by boaters contains bacteria that can make people sick and contaminate shellfish resources.

## To avoid the release of these pollutants to the water please:

- **Use Safe Fueling Practices** - Always use an absorbent cloth or pad when fueling to catch small drips. Avoid spills and do not top off your tank. Fill portable tanks on shore. Notify the marina or the Coast Guard if you cause a spill—it's the law-(800) 424-8802.
- **Keep Engines Well-Maintained** - Proper maintenance prevents leaks, keeps the engine clean, and allows you to spot oil and gas leaks more easily. Dispose of used oil properly.
- **Use Bilge Socks** - Keep an oil-absorbent pad in your bilge. Monitor and change regularly. Never discharge your untreated bilge water directly into coastal waters.
- **Use Pumpouts** - Properly disposing of boat sewage at a pumpout station keeps coastal water clean. For a list of pumpouts in Massachusetts, call the nearest marina or harbormaster, or contact CZM at (617) 626-1200. When docked, use shoreside restrooms.
- **Observe NDAs** - Discharge of treated or untreated sewage in the Commonwealth's No Discharge Areas (NDA) is not allowed. Contact CZM for the locations of NDAs in Massachusetts.
- **Don't Clean Boat Bottoms in the Water** - Boat paints contain harmful components including metals, solvents, and dies, which may be released to the water during cleaning. Never clean your boat bottom when it is in the water, and take precautions to prevent paint residue from washing into coastal waters.



- **Use Less Toxic Cleaning Products** - When you need to use detergents, always use those that are biodegradable. (Even biodegradable soaps and detergents contain substances that can be harmful to marine life, so use all soaps and cleaners sparingly—a little extra “elbow grease” can go a long way!)
- **Keep Trash Out of the Water** - Do not toss trash overboard—store it securely onboard and dispose of it when you return to land. Take particular care to properly dispose of nylon fishing line. In the water, it can entangle fish, wildlife, swimmers, and boat propellers.
- **Buy a Clean Outboard** - Today’s 4-stroke and Direct Fuel Injection 2-stroke outboard engines are substantially cleaner than traditional engines, reducing fuel costs for the boater and protecting the environment.

### “Tread Lightly” on the Sea

Boats allow people to explore areas where improper boating practices can cause environmental harm. Operating a vessel in shallow waters, for example, can do severe damage to eelgrass beds, which are the nursing grounds for many important fish species. Because eelgrass is hidden just below the surface, boat propellers can tear up and uproot the plants. This is of particular concern since eelgrass habitat has dramatically decreased statewide. Boat traffic can also impact salt marshes, which provide flood control and critical habitat for fish, migratory birds, and other wildlife. Because salt marshes naturally form in low-energy environments away from wave action, they are particularly susceptible to erosion from waves created by boat wakes.

### To avoid physical impacts to the coastal habitats, please remember to:

- **Observe “No Wake” Zones** - Lower speeds are required for a reason—for safety and to protect sensitive shorelines.
- **Avoid Boating in Shallow Waters** - Be aware of the environmental damage caused by boating in shallow waters, particularly to eelgrass. If you can’t avoid eelgrass beds, then go slow!

### Stop the Invasion!

Help prevent your boat from becoming an invasive species carrier. Invasive species are non-native plants and animals that negatively impact aquatic ecosystems and related activities—including boating. Invasive plants, like water chestnut (*Trapa natans*) and Codium (*Codium fragile*), can grow so densely that they make waterbodies less attractive for boating, fishing, and swimming. Introduced animals such as the invasive sea squirt, *Didemnum*, can dramatically alter coastal habitats.

### Fortunately, these relatively small changes can have big benefits in stopping the spread of invasive species:

- **Discard Plants** - Remove plant debris from your boat when you take it out of the water. Dispose of plant debris in the trash.
- **Check the Hull** - Inspect your hull and remove any attached organisms.
- **Keep that Bait** - Never release unused bait into the water.

### Clean Boating for All

These are only a sampling of the important things that boaters can do to protect the environment. The small, extra efforts and expenses required to practice clean boating will help preserve a healthy and safe boating environment for now and the future of recreational boating. Enjoy!

### Resources

**Massachusetts Pumpouts** - [www.mass.gov/czm/potoc.htm](http://www.mass.gov/czm/potoc.htm) (updated annually).

**No Discharge Areas in Massachusetts** - [www.mass.gov/czm/nda.htm](http://www.mass.gov/czm/nda.htm).

**Environmentally Friendly Boat Engines** - [www.mass.gov/czm/boatenginesfs.htm](http://www.mass.gov/czm/boatenginesfs.htm).

**CZM’s Boat and Beach Web Page** - [www.mass.gov/czm/boatandbeach.htm](http://www.mass.gov/czm/boatandbeach.htm).

**CZM’s Aquatic Invasive Species Program Website** - [www.mass.gov/czm/invasives/index.htm](http://www.mass.gov/czm/invasives/index.htm).

*Marinas of the Merrimack River (far left, above right) in Newburyport, Massachusetts.*



# Adaptive Management for Impacts to Eelgrass Habitat in Gloucester Harbor

By Anthony R. Wilbur and Kathryn Glenn, CZM, and Brandy M.M. Wilbur, MIT Sea Grant

The city of Gloucester's wastewater improvement project involved the dredging of approximately a half acre of eelgrass habitat in Gloucester Harbor to locate a viable combined sewer overflow (CSO) through Pavilion Beach. While the CSO construction will improve water quality in Gloucester Harbor, the intentional removal of eelgrass habitat was a concern. Eelgrass, *Zostera marina*, is an underwater marine plant that creates one of the most valuable shallow water habitats in Massachusetts. Eelgrass habitat supports an abundant diversity of marine life, stabilizes seafloor sediments and adjacent shorelines, helps maintain water quality, and is a critical component of the marine food web. However, the population of eelgrass is severely diminished from historic levels, and continues to steadily decline throughout its range along the Atlantic coast, including Massachusetts waters.

The Massachusetts Office of Coastal Zone Management (CZM) partnered with the Massachusetts Institute of Technology (MIT) Sea Grant College Program, city of Gloucester, Gloucester Maritime Heritage Center, Massachusetts Division of Marine Fisheries (DMF), and U.S. Environmental Protection Agency to develop a creative response to the planned impacts to the eelgrass bed. The goal of this initiative was to save eelgrass in the project area and raise awareness of eelgrass habitat. Partners combined their resources and expertise to:

- (1) Facilitate ongoing eelgrass restoration in Boston Harbor.
- (2) Study and develop methodology to store eelgrass for future restoration.
- (3) Support local research and education programs.
- (4) Develop interpretative information on eelgrass habitat and the CSO project.

Two community events were organized to harvest plants in the area that was to be impacted by the CSO project, both of which required substantial coordination between project partners and volunteers.

First, in early August 2006, approximately 8,000 eelgrass shoots were harvested from Pavilion Beach to supplement DMF's ongoing restoration program in Boston Harbor. Eelgrass shoots are typically collected from "donor" beds to transplant to Boston Harbor. Transplanting plants from Pavilion Beach eliminated the need for harvesting at the donor bed for this restoration effort and saved eelgrass from Gloucester that would have ultimately been destroyed. The Gloucester project involved a team of divers harvesting eelgrass in the CSO project impact area and transferring the eelgrass to shore, where it was then sorted and counted by volunteers in preparation for transportation to Boston Harbor. DMF divers planted the eelgrass in Boston Harbor the following day.

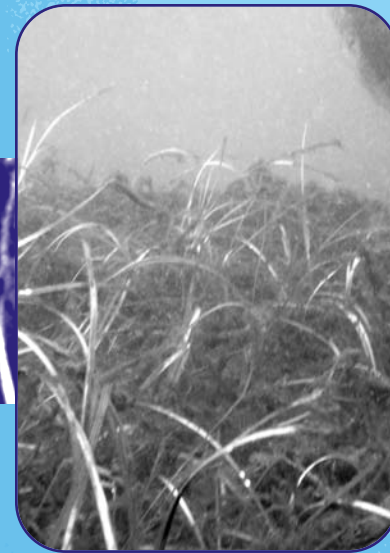
The second event was organized with the goal of creating an eelgrass bank at the Gloucester Maritime Heritage Center (GMHC). To create this new eelgrass bank, project partners researched methods to store and grow eelgrass and constructed infrastructure to maintain the plants. Engineers and scientists worked together on design and logistics of a hydroponic (no substrate) raft system and a flow-through outdoor tank to hold eelgrass shoots. (See photo, far right.)

The raft and tank systems were populated with an additional 8,000 shoots harvested from the CSO project impact area at the end of September, 2006. Eelgrass was weaved into the raft, which was secured between two piers, and planted in the tank at GMHC. Interpretative information was developed to explain the project and is displayed at GMHC and Pavilion Beach to continuously educate the interested public about eelgrass habitat.



*Art or eelgrass?  
A lone blade of  
eelgrass (back-  
ground) prac-  
tices the dead  
man's float  
underwater.*





The hands-on experience for students and citizens provided real-life application of science and resource management and demonstrated the value of eelgrass habitat to the ocean environment. Students identified creatures found in eelgrass during the field events and continue to help the project by researching the ecology of eelgrass in recirculating aquarium systems within their classrooms.

Survival and growth of eelgrass are being monitored in the tank and raft by scientists from collaborating agencies. Eelgrass that survives the winter in these experimental systems will be transplanted back to the impacted area at Pavilion Beach and to other potential restoration sites in the Annisquam River. This study will help determine the feasibility of creating an eelgrass bank. Maintaining the eelgrass bank offers the opportunity to restore eelgrass habitat at Pavilion Beach with eelgrass harvested before the CSO dredging, ultimately saving this valuable resource that otherwise would be removed from Gloucester Harbor.

This project has been successful thanks to the collaboration of many partners and active public involvement. Students and teachers from regional schools, government (city, state, and federal) and non-government organization staff, and volunteers all played valuable roles. The activity on Pavilion Beach also attracted the attention of bystanders and the local newspaper, the *Gloucester Times*. By teaming up to save the eelgrass at

Pavilion Beach, project partners demonstrated the advantage of creative, adaptive, and cooperative efforts to manage coastal resources. The interest to protect this important plant unified all of the partners. Impacts to eelgrass, particularly direct removal, are typically avoided because of the dire population status and ecological value of eelgrass. While much work is needed to save and restore eelgrass in Massachusetts, partners realized the opportunity to turn a less than ideal situation into a valuable lesson in environmental education and resource management.

## For more information...

### Pavilion Beach, Gloucester

[www.gloucestertimes.com/local/local\\_story\\_199064415](http://www.gloucestertimes.com/local/local_story_199064415)

[www.gloucestertimes.com/local/local\\_story\\_271094024](http://www.gloucestertimes.com/local/local_story_271094024)

### DMF's Boston Harbor Eelgrass Restoration Project

[www.mass.gov/dfwele/dmf/programsandprojects/hubline/eelgrass.htm](http://www.mass.gov/dfwele/dmf/programsandprojects/hubline/eelgrass.htm)

### MIT Sea Grant's Eelgrass Stewardship Project

[seagrantdev.mit.edu/eelgrass](http://seagrantdev.mit.edu/eelgrass)

### City of Gloucester

[www.ci.gloucester.ma.us](http://www.ci.gloucester.ma.us)

*From left to right:*

*Volunteers carry eelgrass that will be used in the transplant.*

*Sorting and bundling the Pavilion Beach eelgrass harvest.*

*The eelgrass was transported to divers via boat.*

*Underwater view of the raft. Kinda like a Chia Pet base for eelgrass.*



# THE WORKHORSE OF THE WATERWAYS

By Marcie B. Bilinski

*Since 2002, Marcie B. Bilinski has served as one of two representatives from the sport diving community on the Massachusetts Board of Underwater Archaeological Resources. She is an avid technical diver who logs more than 200 dives annually in the waters of Massachusetts and is a true shipwreck enthusiast.*

*Tugboat, right, typical of the type used during the heyday of the Baleen. For more than 200 years, tugboats have been an important part of maritime history, and a steady presence in Boston Harbor. Today, experienced divers can explore the Baleen 170 feet below the harbor's surface.*

As you stroll along the waterfront or go cruising out in the harbor, it is certainly an ordinary, every day occurrence to spot a tugboat somewhere within your sights. However, it is not so ordinary to experience the adventure one has while exploring a tugboat resting 170 feet below the surface.

Whether it is a harbor, coastal, or ocean-going tug, maneuvering skills are the mainstay of these vessels, which abound in Massachusetts waters. Towing, pushing, or steering the many barges and ships entering and exiting the Bay State's ports is how tugs earn their keep.

Tugboats are quite strong for their size, which is why they have become known as the workhorse of the waterways. Today, diesel engines provide their power—though in earlier times, steam engines did the job. For safety purposes, the engines in tugboats, often the same as those used in railroad engines, have duplicates of each critical part built in for

redundancy. The most common seagoing tugboat is a “standard type” that tows its payload on a hawser (i.e., a heavy-duty wire or fiber rope). There are also “notch tugs,” which are secured in a notch at the stern of a specially designed barge. Additionally, there are “integrated units” in which the tugboat is locked together with specially designed vessels.

Regardless of their type, tugboats have always been commonplace above the surface in Boston Harbor. And, thanks to divers discovering the *Baleen* in 1994, visiting tugboats below the surface is now possible, too. Today the *Baleen* rests 170 feet beneath the surface, well beyond the “recreational” limits of scuba (130 feet is the maximum depth recognized by the customary certifying agencies), but nonetheless, she is one of my favorites to visit and I'd like to share the journey with you.

It has been said that if you can dive in New England you can dive anywhere in the world, and a good







day of scuba diving in the Boston Harbor area is any day you come back alive. I prefer to think of a good day in this area as any day with calm seas and good visibility. However, more common are days spent in rough seas "Braille" diving; in other words, very little to no visibility so all we can do is feel our way along the wreck.

One day last fall, our four-person team set out to explore the *Baleen*. It was a great day by scuba-diving standards. The day was warm and sunny, and the seas were calm like glass. There was virtually no current and the visibility was about 40 feet, which is above average for the Boston Harbor area. After gearing up topside in our long johns, dry suits, hoods, gloves, and boots to protect against the warm 38-degree temperatures, we then donned the rest of our equipment. It would be an understatement to say that technical diving in the deeper waters is an equipment-intensive sport. We rely on double-steel tanks on our backs, decompression bottles under our arms, lights, regulators, buoyancy-control devices, masks, fins, computers, and other redundant equipment too excessive to mention. Imagine all this just to make possible a view of the water-world below. Entering the water wearing close to 200 extra pounds provides a respite from hauling our heavy gear as we become weightless below the surface. We slowly descend our anchor line to the wreck site, and being such a great day, the *Baleen* begins to take shape as we near 130 feet. We land on the wheelhouse at 150 feet, double check that the anchor line from our boat above is securely attached to the shipwreck, and then off we go to explore the splendor and times gone by as it comes to life in front of us.

The *Baleen*, built in 1923, was first named the *John E. Meyer*, a 102-foot long steel hull tugboat with a

23-foot beam. She was an innovative vessel for her time, built with a triple expansion steam engine and also equipped with a steam powered towing winch on the stern. After more than 40 years of service in the fresh water of the Great Lakes for numerous owners, she was sold again. This time it was in the late 1960s, and after some rebuild work, she was put into service off the coast of Florida. As she changed owners she also changed names until in 1969 she was given her final name, *Baleen*. After being sold for the last time, she was put back into service towing barges between New York and various New England ports.

On October 29, 1975, she left New York towing an oil barge. The next day, about 2 miles off the coast of Cape Cod, a fire broke out on the *Baleen*. After the crew unsuccessfully tried to extinguish the fire, they finally had to abandon ship. Fortunately, the Coast Guard was able to rescue the entire crew and there was no loss of life. The fire was finally extinguished the following day and the slow job of towing her to Boston began. Unfortunately, while under tow in the early morning hours on November 1, 1975, she started taking on more water, riding lower and lower until she finally gave up and sank to her watery grave where she lies today.

Today, the *Baleen* rests intact and upright with just a slight starboard list. Over the years she has amassed a whole forest of strikingly beautiful anemones depicting every color of the rainbow. Although quite a bit of silt has accumulated over the years, the wreck can be penetrated in the wheelhouse and engine room. Entrapment in monofilament and gillnets left behind by fishing vessels enjoying the bounty on this man-made habitat are a serious danger to divers, aside from the apparent dangers of wreck penetration and decompression diving. But when you behold the



sight of the *Baleen*, glimmering in the water through the ambient light on a good day, it becomes quite the extraordinary experience.

Non-divers can also see the nostalgia of tugboat history right in Boston's backyard. The *Luna*, a National Historic Landmark, resides on the east side of Commonwealth Pier in South Boston and depicts some more of our local tugboat history. Designed in 1930 by the naval architecture firm John G. Alden Company, the *Luna* was the first of her class built for commercial use. She was a classic wooden-hulled tugboat, more than 90 feet in length, and one of the last of her kind built. She worked out of Boston Harbor for Boston Tow Boat Company from 1930 to 1971. The *Luna* was built with a diesel-electric drive system, which was innovative as it allowed the *Luna* to tow or push barges with great ease in maneuverability. The *Luna* became both an office and a residence after retiring in 1971, but sank in the Charles River in 1992 where she remained for more than a year before being raised and restored. Tours are now available and can be arranged through the Luna Preservation Society volunteers. For further information call (617) 282-1941 or visit the tug's website at [www.tugboatluna.org](http://www.tugboatluna.org).

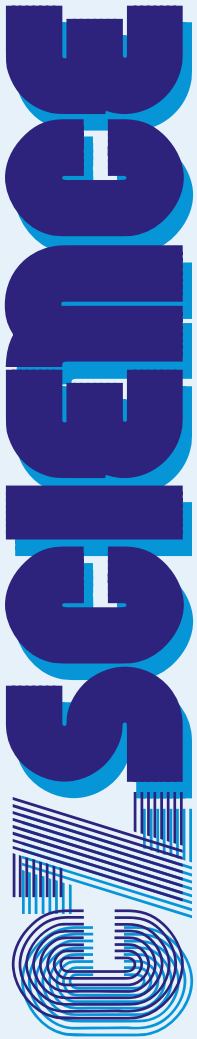


*Everything, including the kitchen sink (top), and a flounder (left), is 170 feet under Boston Harbor's surface on the sunken remains of the Baleen.*

*Marcie, in 250 lbs. of diving gear, prepares to explore the Baleen.*







# Codium Up, Eelgrass Down: Invasives Impact Buzzards Bay

By Dr. Joe Costa, Buzzards Bay Program

During the winter and spring of 2006, Wareham town officials and residents noticed an alarming accumulation of the green algae commonly called dead man's fingers at Little Harbor Beach on Great Neck. The alga, whose scientific name is *Codium fragile*, is an introduced species that was first reported on the eastern coast of the United States in New York in 1957. By 1961, it had spread to Buzzards Bays, Massachusetts (scientists believe it is primarily transported from site to site on the hulls of ships) and has been found in abundance offshore of the Little Harbor Beach area for at least the past 20 years.

*Codium fragile* is anything but fragile. This robust, sponge-like alga, often grows in bushy shapes about two-feet wide and can crowd out and shade other plants and algae. The disruption to native plant life is bad enough on its own, but worse yet, at least to those who rely on shellfish for their livelihood, *Codium* kills shellfish. By growing on shells, *Codium* causes the shellfish to be smothered (it is sometimes nicknamed the oyster thief) or pulled from the bottom and washed ashore. Whelks, slipper shells, and bay scallops attached to *Codium* are commonly found along the shore of Buzzards Bay. The accumulation of dead shellfish in *Codium* wrack (i.e., the piles of seaweed and other vegetation brought ashore by waves and tides) is one of the main reasons why this beach wrack smells stronger and attracts more flies than the native eelgrass beach wrack.

The Wareham *Codium* problem persisted through the spring and summer of 2006. Wareham Department of Public Works (DPW) Director, Mark Gifford, reported that the dense wrack was a nuisance to both beachgoers and the DPW, which has had to haul away truckload after truckload of the odious decomposing *Codium*. One resident complained that after a 10-day hiatus of the DPW cleaning the beach in July, the *Codium* wrack had accumulated up to two feet in thickness, and beachgoers had to clear paths through the stranded *Codium* to access the water.

The accumulation of *Codium* on Little Harbor Beach was really just the tip of the iceberg of some broader problems facing upper Buzzards Bay. While there was a dramatic accumulation of *Codium* in 2006, the continued loss of eelgrass in northern Buzzards Bay began nearly 20 years ago.

Eelgrass beds are an important habitat and nursery for fish, crustaceans, shellfish, and birds. Between the 1960s to mid-1980s, eelgrass was abundant and widespread in Wareham's waters. (Buzzards Bay was the site of the first systematic survey of eelgrass distribution in Massachusetts; and you can view these maps at [www.buzzardsbay.org/eelgrass.htm](http://www.buzzardsbay.org/eelgrass.htm)). In fact, the amount of eelgrass washing ashore in the 1980s prompted the town of Wareham to purchase a vehicle to clean beach wrack off Little Harbor Beach during the summer beach season. This south-facing beach sits in a funnel of land facing the prevailing southwest summer winds, and is a place where beach wrack naturally gravitates.

However, within a decade, the town hardly needed to clean eelgrass wrack off the beach. At the time, the change seemed a mystery. But looking back, the reason for this change is now clear—most of the eelgrass in Wareham's water had died off. The Massachusetts Department of Environmental Protection (MassDEP) later documented this loss when they began a statewide survey of eelgrass cover using aerial photographs taken in 1996.

## Eelgrass Loss and Coastal Eutrophication

It is well documented that excessive nitrogen loading (i.e., large amounts of nitrogen introduced into the environment primarily through fertilizers and fossil-fuel burning) is one of the most common causes of eelgrass loss in coastal waters. Inorganic nitrogen promotes excessive algal growth in the water and on the seafloor, decreasing water transparency in a process called eutrophication, which shades out eelgrass. In some areas, declines

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*There's more where  
that came from...  
Mere hours after the  
Codium wrack had  
been cleaned off of  
Little Harbor Beach  
on Great Neck, more  
Codium washes up  
on the shore.*

may be exacerbated when sediment is resuspended from boat activity, or from localized outbreaks of disease.

The initial observations of eelgrass loss off Great Neck in the 1990s was perplexing because this was an area of supposedly cleaner "offshore" waters where eutrophication losses were generally not observed. However, the scope of the pollution problem in Wareham's waters became evident when the Buzzards Bay National Estuary Program (NEP) began nitrogen-loading assessments and the citizen group, The Coalition for Buzzards Bay, documented fair-to-poor water quality throughout Wareham's three large

river systems (the Weweantic, Wankinko, and Agawam). These river watersheds are impacted by many sources of nitrogen including the Wareham sewage treatment facility, numerous septic systems, and extensive cranberry bogs. It was then that researchers began to realize a possible cause for the widespread water quality decline offshore.

In February 2006, MassDEP released its eelgrass maps for Buzzards Bay based on mid-June 2001 aerial photographs and additional field surveys. These surveys, and other aerial images that the Buzzards Bay NEP has examined, confirm the persistent loss of eelgrass in Wareham. What likely occurred is that eelgrass was growing close to the maximum depth that it could grow off Great Neck, given existing water clarity. In such a situation, even small declines in water quality and transparency can cause large losses of eelgrass.

These events, however, do not explain why *Codium* was so abundant in 2006. The waters off Great Neck were a good habitat for both *Codium* and eelgrass. *Codium* needs less light than eelgrass to grow. It also grows well in nutrient-enriched waters, but, unlike eelgrass, it must attach to a hard substrate. It happens that the shoals off Great Neck have few large rocks, but they do have many gravels, stacks of slipper shell snails, and other shellfish. *Codium* attaches to all of these, but when it grows too large for these lightweight supports, it pulls off the bottom and washes ashore.

In the summer of 2005, because of heavy summer rains, The Coalition for Buzzards Bay recorded some of the worst water quality in their program's 14-year history. It is possible that the heavy rains increased nutrient levels in the waters of Great Neck, which may have boosted *Codium* production and contributed to the massive accumulation washing ashore. Heavy spring and summer rains during 2006 may have further exacerbated the problem.





### Silver Lining, and More Questions

In 1998, based in part on the Buzzards Bay NEP nitrogen loading findings and recommendations, the U.S. Environmental Protection Agency (EPA) required tertiary treatment to remove nitrogen at the Wareham wastewater facility. While treating this discharge alone would not fully restore water quality in the estuary, the upgrade of the facility was expected to result in measurable improvements in water quality in the Wareham River. The Town of Wareham completed the facility upgrade in late 2005 and it came online in the spring of 2006. The EPA permit requires that the facility discharge no more than four parts per million (ppm) total nitrogen during marine algae's fastest growing season of March to October (down from an estimated 15 to 20 ppm total nitrogen). For the 2006 season, the facility discharged an average of 3.2 ppm.

This sewage facility upgrade, together with the ongoing expansion of sewerage in Wareham villages, such as Rose Point and Swifts Beach, are expected to improve water quality in the next few years. Improvements could continue as another 800 coastal homes are tied in over the next two or three years. Experiences elsewhere give reason to be optimistic. When the City of New Bedford upgraded its wastewater facility in the 1990s and fixed failing Combined Sewer Overflows, within five years there was a great expansion of eelgrass in the outer harbor and in Clarks Cove. Elsewhere in the United States, wastewater facility upgrades have often been associated with recovery of seagrasses. If the summer of 2007 has an average rainfall, it is possible that eelgrass populations may begin recovering in Wareham's waters. *Codium*, on the other hand, is here to stay—although the unanswered scientific question remains as to whether recovered eelgrass beds would help exclude *Codium* from Wareham's subtidal real estate.



*Codium fragile is actually rather hardy.*

*Above: Little Harbor Beach area is littered with lots of it, and has been wracked with this problem since the late 1980s.*

*Left: The enemy up close.*



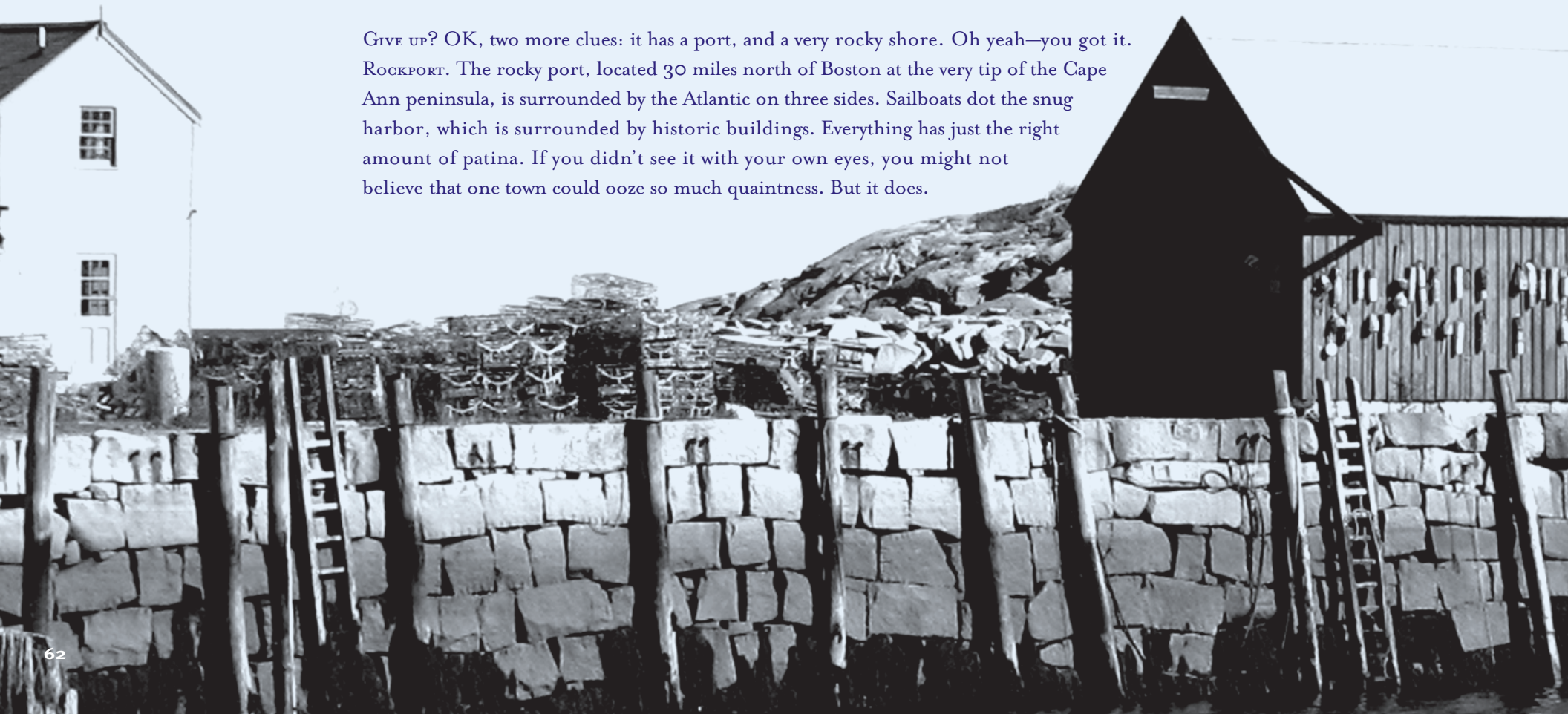
FOCUS ON COASTAL TOWNS:

## WHAT'S ROCKY AND QUAIN T AND PAINTED ALL OVER?

BY ARDEN MILLER, CZM

*Winslow Homer painted there. Mermaids, staring Cher, Winona Ryder, and Christina Ricci, was filmed there. And it's rumored that the remaining band members of the Grateful Dead summer there. It's perhaps best known for its spectacular views and special light—a light of such magical quality that many artists and would-be artists have vacationed or settled there in hopes of capturing it in their art. And this place has inspired a lot of art. In fact, the red fishing shack on Bearskin Point is believed to be one of the most painted buildings in the world! (For more on the red shack, see *Not That Quaint Little Shack Again?* page 63.) And the oldest continuously active artist colony in America calls this place home.*

GIVE UP? OK, two more clues: it has a port, and a very rocky shore. Oh yeah—you got it. ROCKPORT. The rocky port, located 30 miles north of Boston at the very tip of the Cape Ann peninsula, is surrounded by the Atlantic on three sides. Sailboats dot the snug harbor, which is surrounded by historic buildings. Everything has just the right amount of patina. If you didn't see it with your own eyes, you might not believe that one town could ooze so much quaintness. But it does.







## NOT THAT QUAIN'T LITTLE FISHING SHACK AGAIN?

*By Arden Miller, CZM*

According to Rockport Sketch Book author John L. Cooley, illustrator, painter, printmaker, and etcher Lester Hornby (1882-1956) spent winters teaching art in Paris, and summers teaching art in Rockport. Time and time again, when told to paint or sketch an inanimate object, his students chose the red fishing shack at the end of Brady Wharf. At some point, after seeing hundreds of renderings of the shack, his saturation point was reached. The unsuspecting student presented his drawing of the popular building only to be met with an incredulous "What? Motif Number I again??"



Motif Number I, as a moniker for the post-Civil War building, stuck and when the building all but disappeared in the wake of the Blizzard of '78, some wished it to stay away forever. But those with "No more Motif No. I!" bumper stickers were overruled, and the oft-depicted structure was rebuilt. Motif No. I (the second), now a long-established icon whose replica won first prize in the American Legion Convention parade held in Chicago in 1933, even came to represent the entire state of Massachusetts for the U.S. Postal Service's "Greetings from America" series in 2002.

Love it or hate it, it's here to stay. See it for yourself—sketchpad and camera optional.



Like many Massachusetts coastal towns, Rockport was a fishing village before it became a painter's dry-brush dream. Thanks to its solid granite foundation and proximity to tier one fishing grounds, a dock was built in the early 1700s and mariners from all over the world have been taking advantage of it ever since. Also adding to the early economic development of Rockport were the granite quarries—the first in the states—and the timber industry (pine, in particular, was used for shipbuilding). Rockport was settled with a potpourri of people throughout the 1800s. Fins and Swedes with stone-working expertise migrated to the area to work with the granite, while others—notably the French, Italian, and German—made a living by fishing and foresting.

Located directly next to Gloucester, and long thought of as a less-inhabited area of Gloucester, it wasn't until 1840 that Rockport became a separate town. Today, it has a distinct identity as a residential town that approximately 7,000 lobstermen, fishermen, artists and those who love them—or are married to them—call home. And, whether or not you ever come to call it home, it's at least worth a visit.

Even if you're not a fan of cute New England towns and gorgeous light, there's a lot to do and see in Rockport. When it comes to recreation, Rockport packs a lot into its 17.6 miles of land and sea. There are beaches for swimming, sailing, and kayaking (for the sporty types) and deep-sea fishing tours on charter boats for those who want to try to catch their dinner, and plenty of restaurants for those who don't.

*One of the unique things about Rockport, besides the much acclaimed light, is that it remains a working port.*





Amateur and professional photographers will be impressed by the number of Kodak moments to capture. There's of course the aforementioned "Motif No. 1," as well as Straitsmouth Island Lighthouse, the beach, the harbor, sea-weathered boats and houses, and, on a clear day at Halibut Point, views of Mount Agamenticus in Maine, and the Isles of Shoals.

And when you've had enough of nature, there's plenty to see in town. There's a house made entirely of paper known by its oh-so-literal name, The Paper House, the historic Sewall-Scripture House (which contains a large collection of paintings done by deceased Cape Ann artists), and the Rockport Art Association's two historical buildings containing seven art galleries. If that's not enough art for you, there are 20+ art galleries in town—art for show and for sale. And, when you need the kind of quick pick-me-up that only pure sugar can give you, step into Tuck's Candy—a Main

Street staple since 1929 with enough homemade truffles, peanut butter cups, candy bark, toffees, and chocolates to make Veruca Salt salivate.

If candy isn't enough to sustain you, there are local restaurants to suit most tastes (especially if fresh seafood is your taste). Of note to those who like historic buildings, Rockport is home to Cape Ann's only grand hotel and, historic hotel buff or not, you can dine in their Grand Café, which sits a mere 50 yards from the ocean. And a mere three quarters of a mile out in the ocean, the historic twin lighthouses of Thacher Island stand 160 feet above the sea—tours and binoculars optional.

Paper houses, granite ledges, magic light, historic lighthouses, candy, lobster, and views for days—if any of this sounds interesting to you, Rockport could be your perfect daycation.

*Even under a sky full of clouds,  
Rockport's magical light manages  
to shine through.*

## THINGS TO DO AND SEE...

### GENERAL

[www.rockportusa.com](http://www.rockportusa.com)

Lots of general information, and links to other Rockport-related activities and attractions.



### ART, FOOD, & HISTORY

**Grand Café** at Emerson Inn by the Sea One Cathedral Avenue

(978) 546-9500

[www.emersoninnbythesea.com](http://www.emersoninnbythesea.com)



**The Paper House**

52 Pigeon Hill Street

[www.paperhouserockport.com](http://www.paperhouserockport.com)



**Rockport Art Association**

12 Main Street

[www.rockportartassn.org](http://www.rockportartassn.org)

**Sewall-Scripture House**

40 King Street

[www.sandybayhistorical.org](http://www.sandybayhistorical.org)



### RECREATION & OUTDOOR INTERESTS

**Halibut State Park**

Gott Avenue

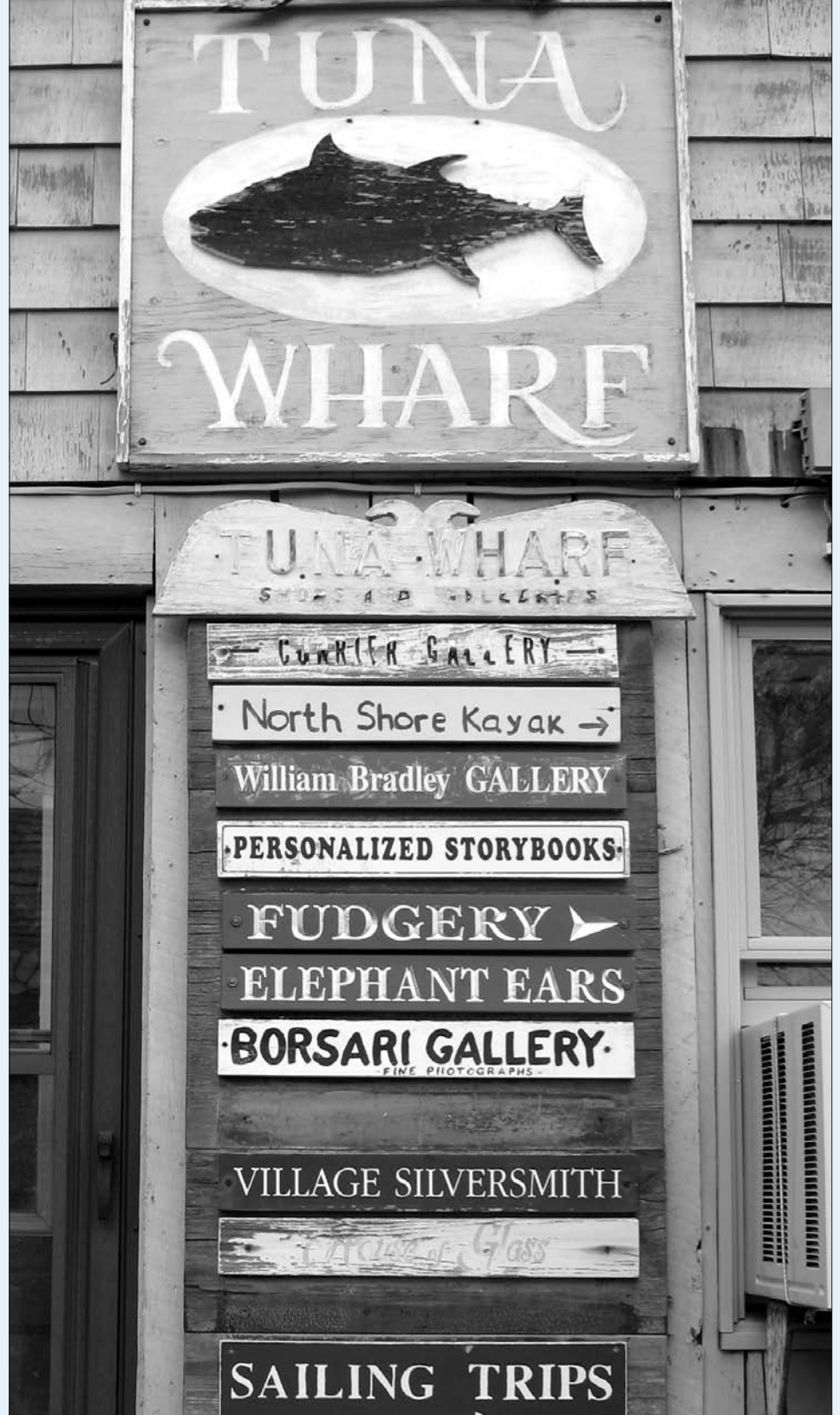
[www.mass.gov/dcr/parks/northeast/halb.htm](http://www.mass.gov/dcr/parks/northeast/halb.htm)

**Thacher Island**

[www.thacherisland.org](http://www.thacherisland.org)



*Ice cream, art, historic houses, museums, fresh seafood, a picturesque harbor, homemade fudge, and coastal recreational opportunities galore—Rockport's truly got something for just about everyone.*





# Here's Stormy

By Peter Hanlon, Massachusetts Bays Program



A RECENT SURVEY INDICATED THAT ONLY 22 PERCENT OF AMERICANS KNOW THAT RUNOFF FROM STREETS, LAWNS, FARMS, ETC. IS THE MOST SIGNIFICANT SOURCE OF POLLUTION IN THE COUNTRY.\* That's not good. To bridge this knowledge gap a few concerned organizations hired a 15-foot tall inflatable yellow duck named Stormy. This is his story.

\*National Environmental Education & Training Foundation (NEETF)

Okay, so this story is a little bigger than big Stormy. A creative outreach campaign was launched in the summer of 2006 called "Think Again. Think Blue." to let people know about the runoff pollution problem, in particular runoff that enters Massachusetts waterways through stormwater systems. Those grated openings on local roads do not lead to sewers where water is cleaned of pollutants, rather the vast majority are entrances to a system of pipes that lead directly to the nearest waterbody. That means that any pollutants on the ground, from dripping auto oil to cigarette butts to dog waste to fertilizer, are whisked away by rainfall to a stormwater system and, from there, they head straight to nearby rivers, beaches, and bays without being treated.

But back to the ducks. Stormwater pollution is a complex and elusive

problem, so staff from the Massachusetts Bays Program (MBP) and Massachusetts Bays Estuary Association (MBEA) took note of a successful stormwater education program called Think Blue San Diego. The San Diego program used witty messages targeted to specific audiences and behaviors, and extensive surveys found that their



*This plastic duck is more than just a pretty blow up doll; Stormy is part of an outreach program that is educating people about stormwater runoff, and how to best deal with pollution.*



**Think Again. Think Blue.**  
*These ads are part of the Think Blue Coalition's outreach campaign. If you think they're funny, try taking the online quiz. ([www.ThinkBlueMA.org](http://www.ThinkBlueMA.org))*



strategy was making an impact. Particularly effective was a television public service announcement called "Fowl Water" that showed oil drippings, cigarettes, and pet waste on the ground turning into little rubber ducks. The ducks then flowed into storm drains where they joined dozens, and then thousands, of other rubber ducks gushing out of an outfall pipe on the beach to illustrate the cumulative effects of stormwater pollution. The MBP and MBEA were smitten with the idea of creating an entire campaign based around the ducks and, along with an advisory group called the Think Blue Coalition (representing more than 25 different Massachusetts organizations, agencies, and businesses), created a series of messages and materials using the duck as a central theme.

In a little more than a year and a half, the campaign has:

- *Conducted an extensive telephone survey among residents of the Massachusetts Bays watershed to better understand the target audience.*
- *Developed three unique ads focusing on pet waste, cigarette litter, and fertilizer use.*
- *Placed the three ads on 18 MBTA subway station platforms.*
- *Customized the "Fowl Water" television spot (created by San Diego) for Massachusetts.*
- *Developed an interactive website ([www.ThinkBlueMA.org](http://www.ThinkBlueMA.org)) with more in-depth information about stormwater pollution, what individuals can do to help, and opportunities to view campaign materials such as the ads and public service announcement.*
- *Created an interactive exhibit for community events with Think Blue materials and promotional items and games for kids.*

The highlight of the Think Blue exhibit is the 15-foot tall inflatable duck, Stormy, who never fails to attract hordes of curious children and adults wherever he goes. Over the course of several events during the summer of 2006, Stormy attracted approximately 10,000 people to the Think Blue exhibit to learn about the causes of and solutions to stormwater pollution. Not bad for a duck.



# Ask Joe

By Arden Miller, CZM

Since 1980, Joe has been involved in a variety of coastal issues through his work at the Massachusetts Office of Coastal Zone Management (CZM). In addition, he serves as the liaison between the Executive Office of Energy and Environmental Affairs (EOEEA) and the Massachusetts Emergency Management Agency (MEMA). To escape these weighty responsibilities, he spends most of his free time sailing, scuba diving, and generally enjoying life in coastal Massachusetts.

**Of all the coastal recreation activities you do in and around Massachusetts, which is your favorite?**

I'd have to say sailing. When I'm on my sailboat, I can fish or scuba dive off the boat, or just relax. One of my favorite things to do on a nice Sunday is pick up the Boston Globe and some Chinese food. My wife and I will sometimes spend the whole day just reading the paper on the boat. I'm very spoiled—I have two moorings, one by Winter Island, and one by Misery Island in Salem, which is better known as "cocktail cove." Nice place to watch the other boats go by and see the sun set. Very relaxing.

**With increased numbers of people taking up ocean-related hobbies, is there enough space for everyone?**

Yes—it's all a matter of timing. I mean, if you want a prime parking spot at the beach on July 4, or you're trying to dock in a popular port on a busy summer weekend, you may be disappointed. But, if you want to take a beach walk in the middle of December, chances are good that you'll have the whole beach to yourself.

**What's the most extreme weather situation you've ever experienced while sailing?**

Well, I wasn't sailing exactly. I was relaxing in cocktail cove in the late afternoon of June 27, 2003, with my wife when my MEMA pager went off, warning of a severe storm in Essex County. We started tying everything up when, less than 10 minutes later, we saw lightning strike nearby and felt 50 mile-per-hour winds. There was a power boat that was moored next to us and it was thrashing back and forth, coming dangerously close to hitting our boat. We were hunkered down, helpless, praying as the boat swished back and forth. It was all over in less than 15 minutes. But it was a very scary 15 minutes.

**Any advice for people thinking of visiting the Massachusetts coast?**

Come! No matter what you like to do, you're likely to find something that interests you. There are plenty of places to go boating, fishing, and swimming. And lots of places to walk along the beach and look for sea glass, or watch the sun set. It sounds like a cliché, but there really is something for everyone here.



AN ELABORATE ENTRY FROM  
SANDBLAST 2006.

*Special thanks to the professional photographers who let us use their photos:*

**Lindsey Buchleitner** (photo of Susan Snow-Cotter, page i) [www.lindseybuchleitner.com](http://www.lindseybuchleitner.com)

**Rob Kipp** (cover, lighthouse above, and bird photos on pages 36-40) [www.bird-photos.com](http://www.bird-photos.com)

**K. McMahon/The Trustees of Reservations** (all "Sandblast" photos)





**FOR MORE ON COASTAL MASSACHUSETTS ACTIVITIES:**

[www.mass.gov/czm/boatandbeach.htm](http://www.mass.gov/czm/boatandbeach.htm)

[www.mass.gov/czm/coastguide/index.htm](http://www.mass.gov/czm/coastguide/index.htm)

[www.mass.gov/dcr/forparks.htm](http://www.mass.gov/dcr/forparks.htm)

[www.mass.gov/dfwele/dfw/dfwrec.htm](http://www.mass.gov/dfwele/dfw/dfwrec.htm)

[www.massvacation.com](http://www.massvacation.com)

[www.masstraveljournal.com/fun/beach.html](http://www.masstraveljournal.com/fun/beach.html)

[www.bostonharborwalk.com/thingstodo](http://www.bostonharborwalk.com/thingstodo)